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09/991,600	11/23/2001	Kazuhiko Hayashi	15113	7594

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EXAMINER

CARIASO, ALAN B

ART UNIT PAPER NUMBER

2875

DATE MAILED: 04/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

09/991,600

Applicant(s)

HAYASHI ET AL.

Examiner

Alan Cariaso

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-- The MAILING DATE of this communication appears on th cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-80 is/are pending in the application.
- 4a) Of the above claim(s) 1-4, 7, 10-12, 17-19, 24-32, 59-62, 66, 71, 73, 74 and 80 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5, 6, 8, 9, 13-16 and 72 is/are allowed.
- 6) ☒ Claim(s) 20-23, 33, 35, 42-45, 47-52, 54-58, 63, 64, 67-70, 75, 76, 78 and 79 is/are rejected.
- 7) ☒ Claim(s) 34, 36-41, 46, 53, 65 and 77 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
2. Claims 20-23 and 67-70 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claims 20-23 are indefinite as collectively depending on canceled claim 1.
4. Claims 67-70 are indefinite as collectively depending on canceled claim 66.
5. Claims 68 and 70, "said expansion" is indefinite as being the same as or different from the preceding "light-permeable expander" of amended claim 67.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
7. Claims 33, 42, 54, 55, 67, 68, 70, 75 and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over TOKUNAGA (US 5,375,043) in view of JONES et al (US 6,198,220).

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8. TOKUNAGA discloses an lighting device comprising an electroluminescent device (LEDs 2a-d) being formed in a recess (1b) at an end surface (1c) of an optical conductor (1); wherein the EL device (2a-d) emits light having mixture color of red, green and blue (col.2, lines 51-64); wherein the optical conductor (1) is formed at the end surface (1c) thereof with an arcuate recess (1b,fig.2) in which the EL device (2) is formed; wherein the EL device (2) is at least partially embedded in the optical conductor (1,fig.2) such that at least an outer sealing layer or cap (2-fig.2) constituting an outer portion of the EL device is embedded in the optical conductor, the sealing cap entirely covering the EL device from the surroundings; given the structure, a method of forming the electroluminescent device (2) on an end surface (1c-fgi.2) of the optical conductor (1) and embedded in a recess (1b) introducing light toward an LCD (3), including forming a light-permeable expander (5-fig.4) on the end surface of the optical conductor (1), the EL device (2) being formed on the expander (5). In regards to claims 68 and 70, reference 10-50124 discloses applicant's invention except the expansion being formed by injection molding or ink-jet injection. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to form the expansion on the optical conductor to include the methods of injection molding or ink-jet injection since it is known in the art to make optical appendages to optical guides by these known methods.

9. However, TOKUNAGA does not disclose the EL device with plural layers. JONES teaches plural layers (fig.1) that constitute an EL or LED device (100) for the purpose of defining an operative illuminating device. It would have been obvious to one

having ordinary skill in the art at the time of applicant's invention to modify the LCD lighting device of TOKUNAGA to include the multi-layer structure of the EL device as taught by JONES et al in order to define an operative EL device.

10. Claims 35 and 78 are rejected under 35 U.S.C. 103(a) as being unpatentable over TOKUNAGA (US 5,375,043) in view of JONES et al (US 6,198,220) as applied to claims 33, 42, 54, 55, 67, 68, 70, 75 and 76 above, and further in view of SCHONIGER et al (US 4,903,172).

11. TOKUNAGA modified by JONES above discloses applicant's invention except a reflector covering the end surface of the optical conductor. SCHONIGER '172 teaches a reflector (12) covering the end surface of the light conductor (10) adjacent the embedded luminescent light source (11) for the purpose of preventing light leakage that would otherwise illuminate the adjacent display. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to modify the lighting device of TOKUNAGA to include the type of reflector with a method of forming the reflector at the end surface of the optical conductor as taught by SCHONIGER et al '172 in order to prevent light leakage.

12. Claims 43-45 and 47-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over TOKUNAGA (US 5,375,043) in view of JONES et al (US 6,198,220) as applied to claims 33, 42, 54, 55, 67, 68, 70, 75 and 76 above, and further in view of CODAMA et al (US 6,121,726).

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13. TOKUNAGA modified by JONES above discloses applicant's invention except the transparent electrode layer, the hole-injecting layer, light-emitting layer, the electron-transporting layer, and the metal electrode layer stacked in this order defining the electroluminescent device as viewed from the optical conductor and a single layer having the functions of the light-emitting layer and electron-transporting layer.

14. CODAMA teaches an organic electroluminescent device (3) that has a multi-layered structure (fig.2; col.4, lines 4-11) including a transparent electrode layer (22), a hole-injecting layer (23), a light-emitting layer (25), an electron-transporting layer (26), and an metal electrode layer (27) stacked in this order (fig.2) for the purpose of defining an operative electroluminescent device that illuminates. CODAMA further teaches the light emitting layer as a single layer that functions as a light emitting layer and electron-transporting layer (col.5, lines 61-65).

15. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to modify the electro-luminescent device of TOKUNAGA to include the multi-layered structure as taught by CODAMA et al in order to define an operative enclosed electroluminescent device that illuminates.

16. Claims 50, 51 and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over TOKUNAGA (US 5,375,043) in view of JONES et al (US 6,198,220) as applied to claims 33, 42, 54, 55, 67, 68, 70, 75 and 76 above, and further in view of reference 10-50124.

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17. In regards to claims 50 and 51, TOKUNAGA discloses applicant's claimed invention except the sawtooth-shaped portion at a light emitting or first surface defined by surfaces extending in parallel with the first surface and surfaces extending perpendicularly to the first surface. Reference 10-50124 teaches a sawtooth-shaped first or light emitting surface (23) as claimed for the purpose of extracting light from the optical conductor (20) toward the LCD. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to modify the lighting device of TOKUNAGA to include the type of sawtooth shaped surface of the optical conductor as taught by reference 10-50124 in order to direct light from the optical conductor to the LCD.

18. In regards to claim 63, TOKUNAGA discloses applicant's invention except first and second substrates sandwiching a liquid crystal layer to define the LCD. Reference 10-50124 teaches a multi-layer LCD that includes first and second substrates (52,53) sandwiching an LC layer (51) for the purpose of defining a liquid crystal device. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to modify LCD lighting device of TOKUNAGA to include the type of multi-layer LCD structure as taught by reference 10-50124 in order to defining an operative LCD.

19. Claims 52 and 79 are rejected under 35 U.S.C. 103(a) as being unpatentable over TOKUNAGA (US 5,375,043) in view of JONES et al (US 6,198,220) as applied to claims 33, 42, 54, 55, 67, 68, 70, 75 and 76 above, and further in view of TIAO et al (US 6,254,246).

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20. TOKUNAGA modified by JONES above discloses applicant's invention except the optical conductor being tapered at least one of upper and lower surfaces adjacent the end surface. TIAO teaches the use of a tapered optical conductor (310-fig.4) that include tapering of at least one of the main surfaces (312,314) adjacent the end surface (312) associated with the electroluminescent light sources (LEDs or EL; col.3, lines 7-11) for the purpose of internally reflecting incident light within the optical conductor (col.4, lines 47-61) reducing light loss from illuminating the display. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to modify the lighting device of TOKUNAGA to include the type of tapered optical conductor as taught by TIAO et al in order to internally reflect incident light from the EL light source reducing light loss of incident light that would illuminate the display.

21. Claims 56-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over TOKUNAGA (US 5,375,043) in view of JONES et al (US 6,198,220) as applied to claims 33, 42, 54, 55, 67, 68, 70, 75 and 76 above, and further in view of INHOHARA et al (US 4,357,557).

22. TOKUNAGA discloses applicant's claimed invention except a deoxidizer and a dehydrator sandwiched between the sealing cap and inner layers of the EL device. INOHARA teaches a deoxidizer (13) and dehydrator (16) sandwiched between the resin or sealing cap (11,12) and inner layers of the EL device (3-6) for the purpose of removing of or sealing from gases and moisture from the EL device. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to

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modify the EL lighting device of TOKUNAGA to include the deoxidizer, dehydrator under sealing cap as taught by INHOHARA et al in order to protect the EL device from moisture and gases.

23. Claim 64 is rejected under 35 U.S.C. 103(a) as being unpatentable over TOKUNAGA (US 5,375,043) in view of JONES et al (US 6,198,220) and reference 10-50124 as applied to claims 33, 42, 50, 51, 54, 55, 63, 65, 67, 68, 70, 75 and 76 above, and further in view of TAI et al (US 5,608,837).

24. TOKUNAGA modified by JONES and reference 10-50124 above discloses applicant's claimed invention except a brightness detector and controller. TAI teaches a brightness sensor (63) and controller (65) for the purpose of sensing ambient light and controlling the dimming or activation of internal lights (18,48-figs.1-3) according to the ambient light sensed. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to modify the LCD-lighting device of TOKUNAGA to include a brightness sensor and controller as taught by TAI et al in order to control the amount of internal lighting of the LCD according to the ambient light sensed.

Allowable Subject Matter

25. Claims 5, 6, 8, 9, 13-16 and 72 are allowed.

26. Claims 20-23 and 69 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

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27. Claims 34, 36-41, 46, 53, 65 and 77 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

28. Applicant's arguments with respect to claims have been considered of which the result is withdrawal of 102 rejections. However, in regards to applicant's disagreement that the remaining claims are at least obvious in view of TOKUNAGA, the action above has been modified to at least clarify the outer portion or sealing cap of the embedded EL device of TOKUNAGA constitutes at least a layer which is embedded in the optical conductor. The rejection of depending claims that are rejected as being obvious in view of at least TOKUNAGA and references to JONES, SCHONIGER, CODAMA, reference 10-50124, TIAO, INHOHARA, and TAI are considered to be directed to similar subject matter as in the previous office action.

Conclusion

29. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the


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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan Cariaso whose telephone number is (703) 308-1952. The examiner can normally be reached on M-F (9:00-5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (703) 305-4939. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.



Alan Cariaso
Primary Examiner
Art Unit 2875

AC
April 21, 2003